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**RESERVE COPY****PATENT SPECIFICATION**

Application Date: Feb. 20, 1935. No. 5420/35.

**444,927**

Complete Specification Left: Jan. 9, 1936.

Complete Specification Accepted: March 31, 1936.

**PROVISIONAL SPECIFICATION****Improvements in or relating to Shears, Bolt Clippers and like Tools**

We, C. & J. HAMPTON LIMITED, a British Company, and CHARLES WILLIAM HAMPTON, a British Subject, both of Record Works, Ouse Road, Sheffield, 9, do hereby declare the nature of this invention to be as follows:—

This invention relates to shears, bolt clippers and like tools of the type in which the jaws form toggle members respectively pivotally connected to handle levers which are also pivoted to one another.

In tools of the type referred to, the active parts of the jaws, hereinafter referred to as the blades, lie upon opposite sides of a plane in which their cutting edges meet while, at the parts covered by the toggle straps to which the jaws are pivoted and at their pivoted connections to the handle levers, it is desirable that the jaws should be flat and of uniform thickness with their surfaces co-planar.

This is usually achieved either by cranking the jaws or, more generally, by reducing the thickness of the parts where they overlap. Also the toggle is frequently retained in a central position in relation to the handle levers by a recess, approximating to a semicircle, in one jaw to receive a corresponding projection of the other jaw.

According to a feature of the present invention flush surfaces are provided to bear against the toggle straps by filling pieces respectively disposed against the outer side of each jaw and of thickness equal to that of the other jaw. The filling pieces may extend to the ends of the jaws which are pivoted to the handles, so that the opposite faces of the composite jaws are flush with one another except at the parts where the blades overlap one another when closed. Preferably the jaws and filling pieces are of the same and uniform thickness.

Each jaw proper and the filling piece associated with the opposite jaw may be profiled to provide an interfitting projection and recess, preferably of substan-

tially semicircular shape, centred substantially midway between the pivots of the toggle straps for retaining the toggle linkage in central relation to the handle levers.

It will be appreciated that the manufacture of the jaws and filling pieces involves merely the production of two jaws of uniform thickness and identical profile and two filling pieces of similar uniform thickness and both of the same profile, which latter, however, will be different from that of the jaws.

According to another feature of the invention each toggle strap is provided or formed with a projection extending towards the free end of the jaw, and conforming approximately to the profile of the active end or blade of the proximate jaw to form a cheek against which the face of the jaw may bear. The toggle straps and projecting cheeks are preferably of substantial thickness to give adequate support to the blades. Each blade, being supported up to near its cutting edge by a cheek, has little tendency to bend and consequently a good shearing action may be obtained. The projecting cheeks are preferably integral with the toggle straps.

Bolts, constituting the toggle pivots, may pass through both toggle straps and through pivot holes in the jaws and filling pieces and may be equipped with nuts, either self-locking or provided with locking devices, in order to permit adjustment and the maintenance of good shearing action.

It will be appreciated that the above description is given by way of example only and that many modifications may be made without departing from the scope of the invention.

Dated the 19th day of February, 1935.

ARTHUR H. GREENWOOD,

Chartered Patent Agent,

39, Bank Street, Sheffield, 1.

**COMPLETE SPECIFICATION****Improvements in or relating to Shears, Bolt Clippers and like Tools**

We, C. & J. HAMPTON LIMITED, a British Company, and CHARLES WILLIAM HAMPTON, a British Subject, both of Record Works, Ouse Road, Sheffield, 9, 95

[Price 1/-]

Record Works, Ouse Road, Sheffield, 9, 95

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do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to shears, bolt clippers and like tools of the type in which the jaws form toggle members respectively pivotally connected to handle levers which are also pivoted to one another.

In tools of the type referred to, the active parts of the jaws, hereinafter referred to as the blades, lie upon opposite sides of a plane in which their cutting edges meet while, at the parts covered by the toggle straps to which the jaws are pivoted and at their pivoted connections to the handle levers, it is desirable that the jaws should be flat and of uniform thickness with their surfaces co-planar.

This is usually achieved either by cranking the jaws or, more generally, by reducing the thickness of the parts where they overlap. Also the toggle is frequently retained in a central position in relation to the handle levers by a recess, approximating to a semicircle, in one jaw to receive a corresponding projection of the other jaw.

According to a feature of the present invention flush surfaces are provided to bear against the toggle straps by separate filling pieces respectively disposed against the outer side of each jaw and of thickness equal to that of the other jaw. The filling pieces may extend to those ends of the jaws which are pivoted to the handles, so that the opposite faces of the composite jaws are flush with one another except in the regions where the blades overlap one another when closed. Preferably the jaws and filling pieces are of the same and uniform thickness.

Each jaw proper and the filling pieces associated with the opposite jaw may be profiled in a substantially complementary fashion to provide an inter-fitting projection and recess, preferably of substantially semi-circular shape, centred substantially midway between the pivots of the toggle straps for retaining the toggle linkage in central relation to the handle levers.

It will be appreciated that the manufacture of the jaws and filling pieces involves merely the production of two jaws of uniform thickness and identical profile and two filling pieces of similar uniform thickness and both of the same profile, which latter, however, will be different from that of the jaws.

According to another feature of the invention each toggle strap is provided or formed with a projection extending towards the free end of the jaws and con-

forming approximately to the profile of the active end or blade of the proximate jaw to form a cheek against which the face of the jaw may bear. The toggle straps and projecting cheeks are preferably of substantial thickness to give adequate support to the blades. Each blade, being supported up to near its cutting edge by a cheek, has little tendency to bend and consequently a good shearing action may be obtained. The projecting cheeks are preferably integral with the toggle straps.

In the accompanying drawing:—

Figure 1 is a part plan view of a pair of shears or bolt clippers in accordance with the invention;

Figure 2 is a side elevation of the shears or bolt clippers shown in Figure 1; and

Figure 3 is a section in the direction of the arrows on the line 3—3 of Figure 1.

Like reference numerals indicate like parts throughout the several figures of the drawing.

The shears or bolt clippers comprise a pair of jaws 5<sup>a</sup> and 5<sup>b</sup> lying on opposite sides of a common plane and pivoted to toggle straps 7<sup>a</sup> and 7<sup>b</sup> upon bolts 8<sup>a</sup> and 8<sup>b</sup> which are secured by nuts 9<sup>a</sup> and 9<sup>b</sup> to clamp the straps 7<sup>a</sup> and 7<sup>b</sup> towards one another. The two jaws 5<sup>a</sup> and 5<sup>b</sup> are of the same and uniform thickness throughout.

Between the jaw 5<sup>a</sup> and the strap 7<sup>a</sup> a filling piece 6<sup>a</sup>, of uniform thickness equal to that of the jaws, is interposed. Similarly between the jaw 5<sup>b</sup> and the strap 7<sup>b</sup> a filling piece 6<sup>b</sup> is interposed. The opposite faces of the composite jaws are thus flush with one another. The filling pieces 6<sup>a</sup> and 6<sup>b</sup> preferably cover the whole of the jaws 5<sup>a</sup> and 5<sup>b</sup> respectively except in the regions of the actual blades where these overlap one another when closed. The heels of the jaws are pivotally connected by bolts 10 to the handles which latter are pivoted together by a bolt 11.

Each handle is, as shown, preferably made in two parts, a shank 12 and an auxiliary lever 13 which is pivoted to the shank upon a pin 14 and is pivoted to one of the composite jaws by one of the bolts 10. In each handle an eye bolt 22, secured by a trunnion 15 to the shank 12, extends through an orifice in the auxiliary lever and is equipped with a nut 16. In each auxiliary lever 13 a set bolt 17 engages a tapped hole and bears against an abutment upon the shank 12. Each shank 12 is equipped with a resilient buffer 21 and these buffers meet when the shanks of the handles are brought into the closed position.

By slackening the nuts 16 and tightening the set bolts 17, or vice versa, the

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amount of overlap of the blades of the jaws 5<sup>a</sup> and 5<sup>b</sup>, when the handles are closed, may be adjusted.

Since the composite jaws are only 5 located by four pivots some constraining means to restrict their freedom of movement is desirable. To this end the jaw 5<sup>a</sup> is provided with a projection 18<sup>a</sup> and the filling piece 6<sup>a</sup> is provided with a substantially complementary recess 19<sup>a</sup> which 10 engages the projection 18<sup>a</sup>. Likewise the jaw 5<sup>b</sup> is provided with a corresponding projection 18<sup>b</sup> which engages a substantially complementary recess in the filling 15 piece 6<sup>b</sup>. The complementary projections and recesses are preferably substantially semi-circular and centred midway between the pivot bolts 8<sup>a</sup> and 8<sup>b</sup>.

In order to provide support for the 20 active or blade portions of the jaws, the toggle straps 7<sup>a</sup> and 7<sup>b</sup> are respectively provided with projections 20<sup>a</sup> and 20<sup>b</sup> extending towards the free ends of the jaws and conforming approximately to the profile of the active ends or blades of the jaws 25 to form cheeks against which the outer faces of the jaws may bear. The projecting cheeks 20<sup>a</sup> and 20<sup>b</sup> are preferably integral, as shown, with the toggle straps 30 7<sup>a</sup> and 7<sup>b</sup>.

The bolts 8<sup>a</sup> and 8<sup>b</sup>, constituting the toggle pivots, pass through both toggle straps 7<sup>a</sup> and 7<sup>b</sup> and through pivot holes 35 in the jaws 5<sup>a</sup> and 5<sup>b</sup> and in the filling pieces 6<sup>a</sup> and 6<sup>b</sup>. The nuts 9<sup>a</sup> and 9<sup>b</sup> may be either self-locking or may be provided with any convenient form of locking device in order to permit ready adjustment and to ensure maintenance of the adjustment to secure continuance of good shearing 40 action. The bolts 10 also extend through pivot holes both in the jaws 5<sup>a</sup> and 5<sup>b</sup> and in the filling pieces 6<sup>a</sup> and 6<sup>b</sup>.

It will be observed that the jaws 5<sup>a</sup> and 45 5<sup>b</sup> are identical, the filling pieces 6<sup>a</sup> and 6<sup>b</sup> are identical and also the toggle straps 7<sup>a</sup> and 7<sup>b</sup> with their projecting cheeks 20<sup>a</sup> and 20<sup>b</sup> are also identical. Also these parts are each of flat form and of uniform 50 thickness. Thus the tool described and shown is simple and cheap to manufacture.

It will be appreciated that one embodiment of the invention has been described 55 with reference to and shown in the accompanying drawing by way of example only and that many modifications may be made

without departing from the scope of the invention.

Having now particularly described and 60 ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

(1) Shears, bolt clippers or the like of 65 the type referred to wherein flush surfaces are provided to bear against the toggle straps by separate filling pieces respectively disposed against the outer side of each jaw and of thickness equal to that 70 of the other jaw.

(2) Shears, bolt clippers or the like according to Claim 1 in which the filling 75 pieces extend to those ends of the jaws which are pivoted to the handles, so that opposite faces of the composite jaws are flush with one another except in the regions where the blades overlap one another when closed.

(3) Shears, bolt clippers or the like 80 according to Claim 1 or Claim 2 in which the jaws and filling pieces are of the same and uniform thickness.

(4) Shears, bolt clippers or the like 85 according to any of the preceding claims in which each jaw and the filling piece associated with the opposite jaw are provided in a substantially complementary fashion to provide an inter-fitting projection and recess, preferably of substantially semi-circular shape, centred 90 substantially mid-way between the pivots of the toggle straps.

(5) Shears, bolt clippers or the like of 95 the type set forth or according to any of the preceding claims in which each toggle strap is provided with a projection extending towards the free end of the jaw and conforming approximately to the profile of the active end or blade of the 100 proximate jaw to form a cheek against which the face of the jaw may bear.

(6) Shears, bolt clippers or the like according to Claim 5 in which the projecting 105 cheeks are integral with the toggle straps.

(7) Shears or bolt clippers constructed 110 substantially as described with reference to and shown in the accompanying drawing.

Dated this 8th day of January, 1936.

ARTHUR H. GREENWOOD,

Chartered Patent Agent,

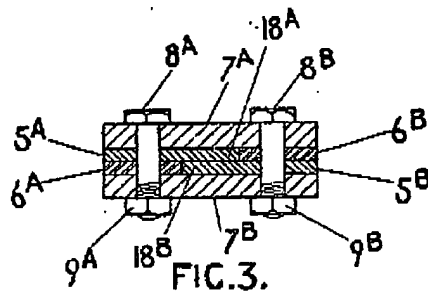
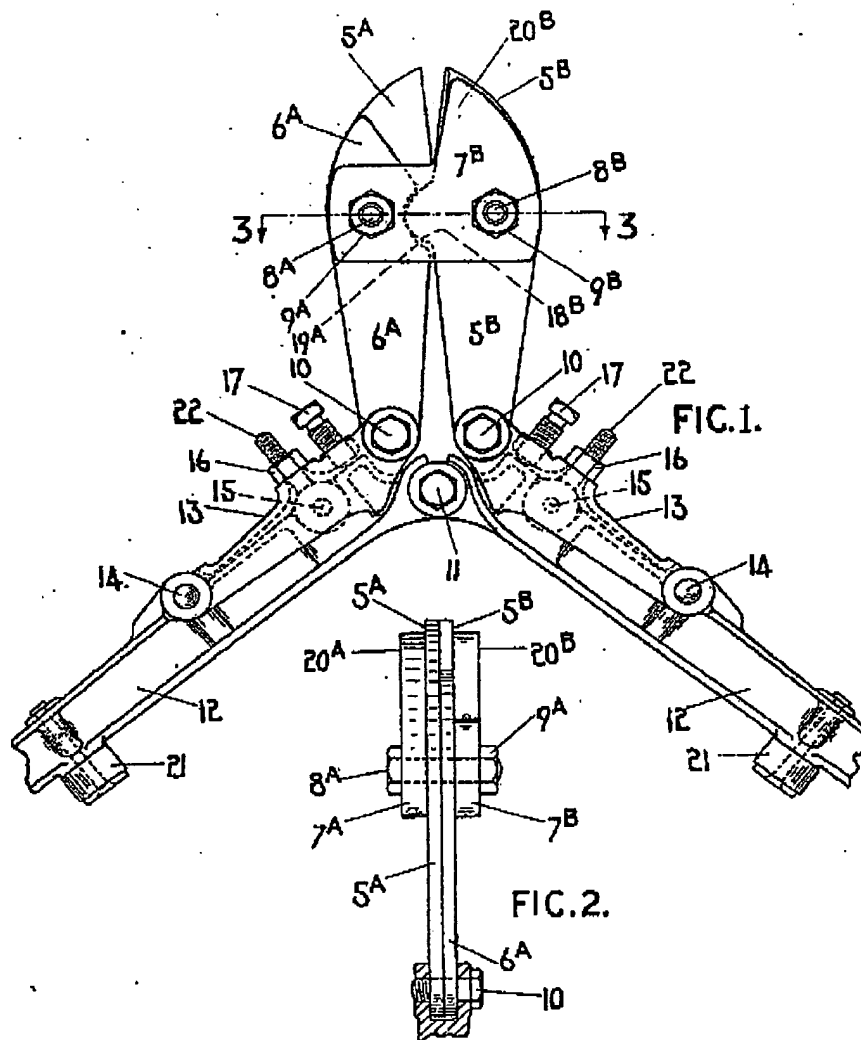
39, Bank Street, Sheffield, 1.

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444,927 COMPLETE SPECIFICATION

1 SHEET

[This Drawing is a reproduction of the Original on a reduced scale.]



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